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How to Make Soap

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HOW TO MAKE SOAP

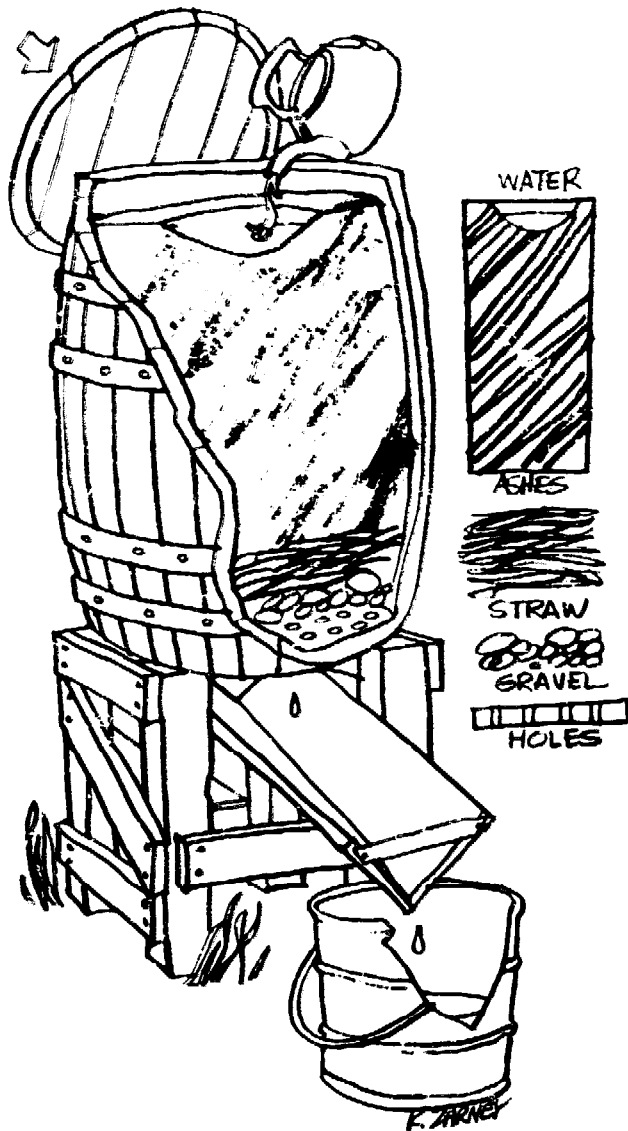
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Soap making is yet another down-home pursuit that allows you to feel good inside because you get to recycle and create at the same time. It's also an operation that can be just as small-scale and simple or as large and sophisticated as you want to make it . . . anything from throwing ashes into the cookout frying pan to carefully measuring rose geranium petals into a precisely controlled batch of bar soap. Perhaps best of all, this homemade cleaner contains none of the phosphates, NTA, still-caustic sodas and other additives that made today's detergents so dangerous to the environment. Real homemade soap is all natural, all organic and as welcome on the homestead as a compost pile.

GENERAL NOTES ON SOAPMAKING

1. Never use lye on aluminum utensils (it acts on them). For small batches of soap, enameled or granite ware is suitable . . . for larger batches, an iron kettle may be used.
 2. There need never be a failure in soapmaking. If separation occurs, ingredients can be reclaimed.
 3. Remember that *lard* is the melted and clarified fat of swine and *tallow* the hard, coarse fat from sheep or cows (usually from around the kidneys and loins). Before tallow dries out, it's called *suet*. *Rendering* fat is simply clarifying it by melting.
 4. The following fats are listed in order of their desirability for soapmaking: tallow, lard, their combinations, olive oil, other vegetable oils. Mineral oils will not make soap and poultry fat should be combined with other fats since soap made from it alone is soft and spongy.
 5. To obtain soap with a clean wholesome odor, all grease must be pure and clean.
 6. Instead of storing rinds and meat scraps, extract the fat and store it in a tightly covered container in a cool, dry place.
 7. Make the fat into soap as it accumulates and let
11. Coldness makes a hard, brittle soap.
 12. Excess lye makes a coarse, flinty soap that will crumble when shaved. Aged soap should have a smooth velvety texture, should curl when shaved and should not bite the tongue.
 13. Aging always improves soap. Soap made from lard or soap that has been boiled requires the longest aging before it becomes hard and ready for use.
 14. Use the following all-purpose soap as a toilet soap, as a shampoo or as a laundry soap for prints, lingerie, hose and other delicate fabrics. ☺
8. If you find that your grease has become rancid or contains materials other than fats, boil it in a large quantity of water, allow it to cool, skim off the grease and then follow the directions in the recipe for soap-making.
 9. Measure accurately and be careful about temperatures.
 10. The ammonia, kerosene, carbolic acid, etc. that some people add to soap help it little, if any . . . they are usually neutralized by the lye. Such ingredients DO increase cost and may even make soap harsh on skin.



SOAP MAKING IN THE BUSH

PAUL D. MATTEONI

If it hadn't been for the help we got from the native old-timers . . . my friend, Dennis, and I would have starved or just plain quit the winter we settled into that abandoned miner's cabin in Alaska. The sourdoughs came to our rescue, though, and soon taught us how to survive on less than \$10 a month cash money by trapping, tanning, foraging food and dipping candles from our own tallow and lard. With their generous assistance, we also quickly mastered the fine and easy art of recycling hardwood ashes and left-over kitchen fats into clean, all purpose soap.

Now, soap making in the woods can be an almost automatic thing. Anyone who's done much camping knows that—if you throw some white ashes from a hardwood fire into your frying pan after dinner—the lye in the ash will combine with the fat from the cooking to make a crude soap. This works fine for rough-washing tin plates and hunting knives . . . but there are times when even the most ornery outdoorsman needs bar

soap. We were no exception and—thanks to our instructors—soon became adept at making both soft and hard soap, starting at ground zero with lye from our own leaching barrel.

All you really need to turn out the same sort of non-polluting cleanser that our pioneer foremothers scrubbed with, you know, is lye and animal fat. Whatever meat scraps and drippings you have on hand will supply the fat and the lye comes from wood ashes and water.

To make lye in the kitchen, boil the ashes from a hardwood fire (soft woods are too resinous to mix with fat) in a little soft water (rain water is best) for about half an hour. Allow the ashes to settle to the bottom of the pan and then skim the liquid lye off the top. You can do this daily and—when you've got enough of the weak solution—start the soap making process by boiling the liquid down until it'll float an egg. (One word of caution: DON'T use aluminum dishes or pots. The lye will eat right through 'em!)

Now put that meat fat, left-over cooking lard and vegetable oil into a kettle (not over half full) and heat the whole mess until all the liquid has been rendered out of the solid scraps. While it's still hot, add this clean grease to the bubbling lye and continue to boil the mixture—stirring all the while—until it reaches the consistency of thick corn meal mush.

You should have a wooden box two inches high, three inches wide and six inches long handy (this is the mold for one bar . . . if you're making more soap, use a larger box and cut the hardened finished product into convenient chunks). Cover the bottom of the box with waxed paper or grease to keep the soap from sticking, pour in the mushy mixture and let it cool. You've got yourself some backwoods soft soap!

Hard soap is made the same way, except that you add a little salt to the mushy mixture as you pour it into the mold. The best proportion we found was two and a half pints salt to five gallons of tallow, and we also discovered that a little powdered rosin added to the grease (just before the lye is mixed in) helps the soap to set more firmly.

Since lye is used in the backwoods often and for many purposes besides the making of soap, you may find it desirable—as we did—to build your own leaching barrel. To do this, take any large wooden or steel container, cut holes in its bottom and put in a layer of pebbles. Place two or three inches of straw or dried grass on top of the little rocks and then fill the barrel almost full with hardwood ashes from the fire. Tamp the ashes down as you fill the container and leave a small depression in the top.

Support the barrel about three or four feet off the ground and place a sloping trough under the keg to catch and funnel into a bucket the lye that seeps out. When you have the apparatus set up, fill the depression in the barrel with water.

Slowly, that water will seep down through the ashes and—after six to eight hours—a solution of lye will begin to trickle (not run) down the trough. Don't get anxious and try to speed the process by adding more water up above until the depression in the ashes is empty. When it comes to leaching out lye, patience is a decided virtue.

The first run will be strong enough to cut grease, but succeeding runs of lye will have to be poured through your processor twice. The finished solution is finished, though, since the leaching barrel produces the same results you'd get by boiling the wood ashes.

A bit of trial and error taught us that hickory, sugar maple, ash, beech and buckeye are the best producers of lye. Most hardwood ashes will do, though, and with them—plus a bucket of rain water and some left-over cooking fat—you can easily brew up enough soap to clean everybody and everything that needs it . . . and maybe even some that don't. ☺

MAKIN' SOAP ON THE HOMESTEAD

DIXIE HAYWOOD

It went against my grain to throw out the tallow from a side of beef we bought, so I called our County Agent to see if he had any directions for making soap. To my surprise, he did; to my further surprise, they were easy.

I rendered the first batch of tallow by cutting it into chunks, filling the pan about one-third full of water and occasionally stirring the fat while it cooked at moderate heat. The stirring was a bit sloppy and the fat took quite a while to melt, so I ground subsequent batches of tallow in the meat grinder. This speeded up the process considerably because I could then get more in the pan, it was easier to stir and the fat melted more rapidly.

The melted tallow and water was sieved and cooled. When the fat had solidified, I lifted it off the top of the water . . . and it was ready for soap.

While I was heating 6 pounds of the rendered fat (13-1/2 cups) to 120-130 degrees, I stirred together a 13 oz. can of lye and 5 cups of cold water and heated that mixture to 90-95 degrees.

When the fat and the lye were at their respective proper temperatures, I slowly poured the lye solution into the fat and stirred the resulting blend with a wooden spoon. In about 30 minutes the soap was thick enough to hold its shape so I poured it into a heavy cardboard box lined with a towel wrung out in cold water. *It is important to NOT use aluminum utensils when making soap as lye reacts rather violently with this metal.*

After my soap had aged for a little over a week, I grated it and mixed nine parts of the soap to one part borax to make eleven pounds of soap flakes. Since our water is very hard, I use one-third cup of washing soda to 1-1/2 cups of soap flakes in my washer and—despite the implications of some detergent ads—I'll compare my wash with anyone's.

Now I'm saving fat from cooking for the next batch of soap (which will be "all purpose" instead of the thin-lathering "saddle soap" made from tallow alone). The fat I'm collecting will have to be washed by bringing it to a boil with an equal amount of water, then removing it from the fire and stirring in one quart of cold water for each gallon of hot liquid. The cold water precipitates cooking debris and the clean fat rises to the top when cool.

Apparently if the above directions are not followed carefully, your ingredients may sometimes separate and not form soap. Don't despair! You can save the mixture by melting it over low heat. Stir the batch during this reheating to keep it from sticking and remember, do not attempt this remelting in an aluminum pan. Add enough water to give the mixture the consistency of thick syrup and boil until soap forms.

The can of lye I used had an offer on the label for more detailed information about soap making free from Pennlye Division, Rasco, Inc., P.O. Box 193, Lakeville, Conn. 06039. You'll find substantially the same tips, recipes and instructions accompanying this article. ☺

(This article was originally published in the January/February 1972 issue of THE MOTHER EARTH NEWS®.)

GENERAL NOTES ON SOAPMAKING

PREPARING FAT

Good soap requires fats that are free of dirt, rancidity, lean meat scraps, salt and other impurities. Fats may be grouped in three classes:

1. **READY-FOR-SOAP FAT**, rendered from tallows, meat trimmings and other meat scraps.
2. **MEAT FRYINGS AND OTHER REFUSE FATS** which should be washed as follows: add an equal amount of water and bring to a boil. Remove from fire, stir and add cold water (one quart to one gallon of the hot liquid). The cold water precipitates foreign substances and makes the clean fat come to the top . . . remove it when it's firm.

Some fats require a second washing and a very rancid fat should be washed at least twice. If the fat has a strong odor, melt it in a double boiler and, instead of using an equal amount of water before boiling, add either 1/4-teaspoon soda and one cup boiling water (or 1/2-cup milk and a small sliced potato) to each two pounds of fat.

3. **CRACKLINGS**. Remove fat from pressed cracklings by covering them to twice their depth with water to which has been added one level tablespoon of lye for every four pounds (or one gallon) of pressed cracklings. Boil for one hour. Remove from fire and, when boiling stops, pour in one quart of cold water for each gallon of fat and proceed as with the meat fryings and other refuse fat above.

(continued on next page)

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Treat unpressed cracklings the same as you handle the pressed ones, except for using one level teaspoon of lye—instead of one tablespoon—for each four pounds of cracklings.

NOTE: Sixteen pounds of cracklings (approximately four gallons) can be boiled at one time. Remove fat from the cracklings after butchering and store it until enough has been accumulated for soap.

RECIPE FOR ALL-PURPOSE SOAP

To make nine pounds of pure, hard, smooth soap suitable for toilet, laundry or soap flakes, use:

- 1 can lye (13 oz.)
- 2½ pints cold water (rain water is best)
- 6 pounds clean fat (about 6¼ pints or 13½ standard cups).

Pour the lye into the water (remember, never use an aluminum container), carefully stir until the lye is dissolved and let cool to correct temperature (see below). Melt fat into clear liquid and let cool gradually to its correct temperature or until the fat offers resistance to the spoon . . . stir from time to time to prevent crystals of fat from reforming.

Pour the lye solution into the fat in a thin, steady stream, stirring slowly (rapid addition of lye solution or hard stirring is liable to cause a separation). The honey-like liquid will begin to thicken in about 10 or 20 minutes as all the lye is incorporated into the fat.

Pour this thickened mixture into a wooden box that has been soaked in water and lined with a clean, slightly damp cloth. Place the filled mold in a protective pan and cover it with some cardboard or a board and then with a rug or blanket to retain heat while the soap is texturing out. Let the soap remain undisturbed for 24 hours, then lift it from the mold by grasping the ends of the overhanging cotton lining. Cut the soap into bars by wrapping it once with a fine wire or string, crossing the ends of the thread and pulling.

If, after 24 hours in the mold, the soap has a film of grease on its top, leave the new soap for 48 hours (or until the grease disappears) before cutting it. If liquid appears in the bottom of the mold, cut the soap into small squares and let it stand until the liquid is absorbed.

Place newly cut soap so that air (but not drafts or cold) can reach it . . . and never, never let the soap freeze during its first two weeks. Fresh soap may never lather well if exposed to drafts and—if excessively chilled—may become hard and flinty. Your homemade cleanser will be ready for use in 10 to 14 days and will improve with aging.

TEMPERATURE CHART

Correct temperatures are extremely important for making the finest soap, so follow these guidelines closely (use a dairy or floating thermometer):

TYPES OF FAT	TEMPERATURE OF FATS	TEMPERATURE OF LYE SOLUTION
Sweet rancid fat	97°F to 100°F	75°F to 80°F
Sweet lard or other soft fats	80°F to 85°F	70°F to 75°F
Half lard and half tallow	100°F to 110°F	80°F to 85°F
All tallow	120°F to 130°F	90°F to 95°F

In hot weather or in a hot room, the soap mixture may remain greasy. If so, set the mix in a pan of cold water and continue stirring until it thickens and becomes ready to pour.

If temperatures are too low, lumps of soap will form and separation will occur. In that case, set the mixture in a pan of warm water and stir gently until it is of the right consistency and all the lye is incorporated.

In any case, avoid hardening of the mixture on the sides and bottom of the pan.

SEPARATION

If too cold or too hot a temperature is maintained or if the soap is too vigorously or not thoroughly mixed, a separation may occur (greasy soap forming at the top while the liquids settle to the bottom). Separation may also result from using fat which is exceedingly rancid or which contains salt.

RECLAIMING SOAP

When separation does occur, reclaim as follows: cut or shave the soap into a kettle, add the lye that has separated out (never throw it away) and add about five pints of water.

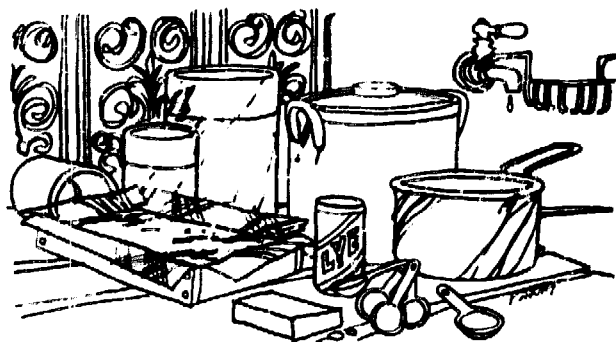
Re-melt the soap over gentle heat, stirring occasionally, and then gently boil the mixture . . . it should become thick and syrupy. If it doesn't, add more water one pint at a time (don't be afraid of adding too much because it can be boiled off), and continue boiling the solution until it becomes ropy and hairy when dropped from the spoon. Pour the soap into a mold and cover.

VARIATIONS IN SOAPMAKING

In addition to the pure all-purpose kind, many other varieties of attractive and useful soap can be made and the thrifty housewife may actually eliminate all soap and cleanser purchases while enjoying all the luxury and efficiency of dozens of types of cleanser.

Almost any soap can be made to float. When the mixture is thick enough, just fold air into it the same way you fold eggs into a cake batter.

The following six oils are recommended for perfuming soap: saffras (four teaspoons), lavender (two teaspoons), citronella



(two teaspoons), lemon (one teaspoon), cloves (one teaspoon), almond (one teaspoon) or rose geranium (one-half teaspoon).

Your druggist can supply or secure coloring ingredients for you, but never use perfumes or colors containing alcohol, as they will fade and may cause separation. (Ed. Note: The U.S. Dept. of Agriculture recommends small amounts of the following dyes each dissolved in about two tablespoons of water; Fluorescein for yellow, Naphthol Green for green and Rhodamine for red. Dye solution should be mixed with the soap just before it's poured into the molds.)

All soap readily absorbs odors and can be inexpensively perfumed by being placed with a favorite flower or other source of perfume. With perfume and coloring from the home garden, luxurious toilet soaps can be made at very low cost.

For example, a tea made with the leaves of rose geranium exudes a delightful perfume and may be colored by adding the extract of blossoms of pink roses or tulips. A green color can be obtained by pounding the tops of beets and extracting a few drops of the juice to add to the water.

Borax quickens the sudsing action of soap. Two tablespoons dissolved in the lye solution (for each can of lye) during cooling is sufficient.

It's an easy matter to make fine soap flakes and chips with lye soap. Rub three-day-old soap over a soap chipper or vegetable shredder and stir occasionally as it dries. To make powder, first flake or chip the soap and dry in a warm oven (150° F). When the flakes are thoroughly dry, pulverize them.

OTHER SOAP RECIPES

TALLOW SOAP: All-tallow soap is often referred to as "saddle soap" because it is so valuable as a cleaner and preserver of leather. Substitution of lard, coconut or olive oil for one pound of tallow will improve its lathering properties. Ingredients: one can of lye, 2-3/4 pints water, 6 pounds of mutton or beef tallow. Temperature: lye solution 90° F, fat 130° F.

COCONUT OIL SOAP: This soap gives a very profuse but thin lather . . . to thicken it, substitute tallow or lard for part of the coconut oil. Ingredients: one can of lye, 2-1/2 pints water, 4-1/2 pounds coconut oil. Temperature: lye solution 70° F, oil 110° F.

GLYCERINE SOAP: To make glycerine soap, add about 6 ounces of glycerine to any soap shortly after the lye solution has been poured in.

IMITATION CASTILE SOAP: A very high-grade soap which is, in many respects, superior to castile soap. Ingredients: one can of lye, 2 pints of water, 24 ounces olive oil, 38 ounces good grade tallow, 24 ounces coconut oil. Temperature: lye solution 90° F, fats 90° F.

COTTONSEED OIL SOAP: Saponification (uniting of lye and oil) is difficult in making this soap. The lye should be added in small portions and completely absorbed before more is put in. The resulting product will be a rather soft soap. For harder soap, substitute tallow for part of the cottonseed oil.

ABRASIVE SOAP: Follow the basic soap recipe. When mixture thickens, gradually add 5 to 6 pounds of pumice stone, emery dust or tripoli powder and stir until the soap is thoroughly blended and all the lye incorporated. Yield: 14 to 15 pounds.

ABRASIVE SOAP PASTE: A fine soap for household scouring and for mechanics' hands. Shave 3 pounds of homemade soap and melt it in 3 pints of water. Add 3 ounces of light mineral oil. When ingredients are thoroughly blended, allow the mixture to cool to a thick consistence and work in 5 pounds of pumice stone or tripoli powder. Keep paste tightly covered to prevent it from drying out. Yield: 11 pounds.

JELLY SOAP: Lye-hard soap converted into jelly soap is convenient and economical to use in the dish pan or washing machine. Cut one pound of hard soap into fine shavings and add one gallon of water. Boil for about 10 minutes, then transfer the mixture to a suitable vessel to cool. Keep covered to prevent drying. Jelly soap immediately melts in hot water and makes thick suds.

LIQUID SOAP: Ingredients: one can of lye, 7 pints water, 3 pints glycerine, 6-1/2 pints alcohol, 4 pounds cottonseed oil, 1-1/4 pounds coconut oil. Dissolve the lye in a mixture of 3-1/2 pints each of alcohol and water, and heat to 125° F. Hold the

oils at 150° F and add a few ounces of the lye solution, stirring slowly and evenly. When saponification is about complete, add the last of the lye solution—a few ounces at a time—stirring continually, and repeat until all the lye solution is in.

Cottonseed oil is sometimes rather hard to saponify, and slight separation of oil might occur if the lye is added too rapidly. In this case, allow the mixture to stand 24 to 48 hours, stirring occasionally. When a perfect blend is obtained (no separation), add the glycerine and the remaining alcohol and water. Allow the mixture to stand for a couple of days and, if any sediment settles out, filter or syphon off the clear liquid. Then color and perfume as desired.

FISH OIL SOAP: Fish oil soap often appears as a basis for sprays used as insecticides and fungicides. Ingredients: one can of lye, 3 pints water, 4-1/2 pounds fish oil. Temperature: lye solution 80° F, oil 100° F. Stir well for about 10 minutes and then allow to stand (stir occasionally) until combination is complete. Transfer to molds.

LINSEED OIL SOAP: Washing automobiles and furniture is probably the most popular use for this very soft soap. Ingredients: one can lye, 4 pints water, 5-3/4 pounds linseed oil. Temperature: lye solution 90° F, oil 100° F. Add lye solution in small quantities and get a good combination before further additions of lye.

TAR SOAP: A lard or tallow soap is made up in the regular manner and allowed to stand with occasional stirring until it has become quite thick. Eight ounces of wood tar is then added and worked in. Stir and beat the mass thoroughly to prevent small lumps from forming.

HARD WATER SOAP FROM CRACKLINGS: Combine 2 gallons of water and 3 cans of lye. Allow the mixture to cool an hour or more, then place it on a stove and add 15 pounds of fat scraps. Boil until every scrap is dissolved. Add a total of 2 gallons more water, a little at a time (to keep the mixture from boiling over). Set the batch aside to cool for a day, skim the solids from its surface, place the mixture in a clean kettle and boil for 2 hours. Add boiling water until the soap becomes the consistency of honey when dropped from a stirring stick. If too much is added, boiling will need to be prolonged. Pour the soap into molds and cover it while it cools.

ROSIN SOAP: Rosin added to soap makes the soap darker, softer and increases its lathering properties. Add 8 ounces of crushed rosin to 5-1/2 pounds of clean fat and raise the temperature until the rosin has melted or dissolved into the fat. Cool the mixture to 100° F and add the lye solution made by dissolving one can of lye in 2-1/2 pints of water and cooling the solution to 90° F. If you prefer a heavier concentration of rosin, decrease the amount of fat in the recipe by 8 ounces for every additional 8 ounces of rosin which is added. The total weight of rosin and fat should be 6 pounds for each can of lye.

HARD SOAP BY THE BOILING PROCESS: Prepare the soap in the usual manner but do not pour it into your molds. Instead, keep it covered and in a warm place overnight. Cut the soap into fine shavings the next day, add 7 pints of water and melt the mixture with gentle heat and occasional stirring. When all the lumps are dissolved, raise the heat and continue boiling the soap until it is syrupy when dropped off a spoon or paddle. Pour the mixture into molds at that point. Soaps made by the boiling process require more aging than those made by the cold process. Perfumes, colors and other special materials are added to boiling process soap after it has cooled somewhat, but while it is still fluid enough for pouring. ●